

APPLICATION NOTE

Metasys Integrator® Simplex® Application

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Introduction

This document explains Metasys Integrator® Simplex® 4100/4100U/4120/4020 Computer Port applications. Use this document with the Metasys Integrator unit technical bulletins, which provide information on installing and commissioning the Metasys Integrator unit. For information on Simplex equipment, see Simplex documentation (obtainable from a Simplex representative).

Note: If you use a Universal Packaging Module (UPM) enclosure, you **must** install the Metasys Integrator unit 300 Series in a two high enclosure (EN-EWC25-0) rather than a one high enclosure (EN-EWC13-0) as shown in the figures in this application note.

The Metasys Integrator unit is **not** Underwriters Laboratories Inc.® (UL) Listed as a fire alarm control unit (UOJZ). However, the Metasys Integrator unit is UL Listed as a smoke control accessory unit (UUKL) for smoke control applications. The Metasys Integrator unit is designed to provide secondary monitoring for a fire alarm, while the Simplex fire alarm control panels provide notification and control functions.

IMPORTANT:	Do not use the Metasys Integrator unit as a primary fire alarm control unit. The Metasys Integrator unit provides secondary monitoring and can be used for smoke control applications. A fire alarm control panel is necessary to provide notification and alarm control functions. Use of the Metasys Integrator unit alone may result in a failure to obtain proper response to a fire with a resulting greater risk of property damage, personal injuries, or deaths.
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Application Details

The Metasys Integrator unit can connect to either a network of Simplex panels via a Simplex Network Display Unit (NDU), or to an individual panel. They cannot be combined on the same Metasys Integrator panel.

Each Metasys Integrator vendor port can connect to one 4100/4100U/4120 or 4020 Computer Port.

Both the 4100U and NDU can support more data than one NCM can support. To ensure reasonable performance, do not define more than 2,500 objects per NCM. Companion systems do not support more than 800 points.

Be sure to define the card applications as well as the card devices. If not, devices can be offline and you may not receive any notification. This is true especially when the cause of the offline is a card failure. For the 4100U System Power Supply (SPS), define both the card status application for the SPS as well as the IDNet. The IDNet can exist both on the SPS card and as its own card.

IMPORTANT: Metasys Integrator unit supports reading analog values for the 4100U. These are read on a very slow poll and should not be used for fire alarm reporting but can provide warning alarms for preventative maintenance.

Network Configuration (NDU)

The Metasys Integrator unit allows Simplex 4100/4120 Networks to become an integral part of the Metasys® and Metasys Companion Networks. Once the Simplex 4100/4100U/4120 Computer Port is configured at an NDU and connected to the Metasys Integrator unit, each 4100/4100U/4120 Master Controller can be accessed by the full complement of Metasys Building Automation System (BAS) features, including monitoring, trend, and totalization.

Figure 1 shows Simplex network configuration and Metasys system integration.

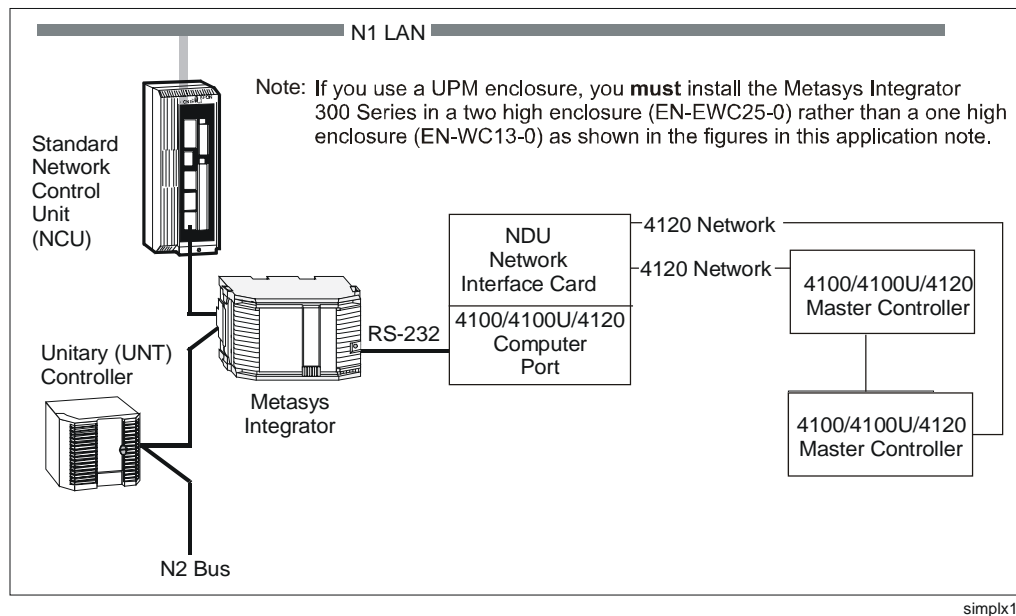


Figure 1: Simplex NDU Configuration and Metasys System Integration

Single-panel Configuration

This interface option allows the Metasys Integrator unit to interface with a Simplex 4100, 4100U or 4020 panel without the Network Display Unit. The Metasys Integrator unit can connect to an RS-232 card in these panels. This single-panel configuration allows the unit to read the status of the following card types: Master Controller, Four Point Auxiliary Relay, Signal Cards, Remote User Interface, Mapnet® Interface, Eight Point Auxiliary Relay, Eight Point Multi-function Input/Output (I/O), and the Digital Pseudo card. It is not possible to monitor the Network Interface Card in this configuration. Figure 2 shows Simplex single-panel configuration and Metasys Companion integration.

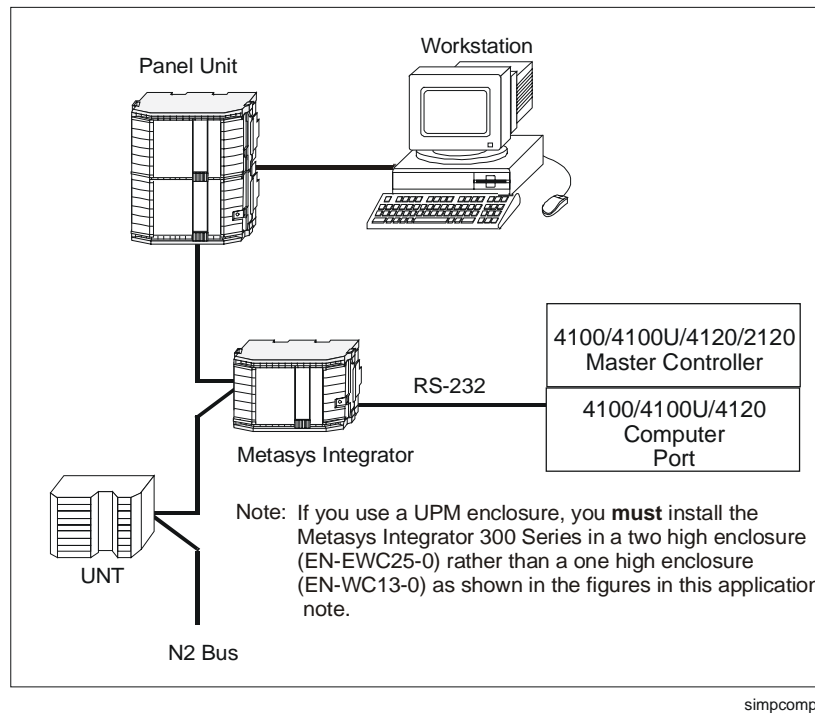


Figure 2: Simplex Single-panel Configuration and Metasys Companion Integration

Simplex Direct Connection

The direct connection interface option is used when it is not required to support the Network Interface Card. The statuses of the cards that are integrated to the local Simplex panel can be monitored. Use one or two N2 addresses for each card that is interfaced into the Metasys Integrator unit. Only one panel can be connected to a port on the Metasys Integrator unit.

Component Requirements

Network Configuration (NDU)

To integrate Simplex equipment, you need:

- Simplex NDU
- Simplex Network Interface Card
- Simplex 4100/4100U/4120 Computer Port configured by a Simplex technical representative using the 4100 programming unit
- Simplex 4100/4100U/4120 Master Controller
- RS-232 cable for connecting the computer port to the Metasys Integrator unit (a Simplex RS-232 interface card is also required)
- Metasys Integrator unit
- N2 Bus (for connecting Metasys Integrator unit to the Metasys or Companion network)
- portable Personal Computer (PC) for downloading vendor communication tables (.VCT files) and network setup information into the Metasys Integrator unit, drive communication settings, and for running diagnostics
- cable for connecting portable PC to Metasys Integrator unit
- the correct vendor communication table (.VCT file) to download into the Metasys Integrator unit (supplied on the Metasys Integrator unit CD-ROM)

Single-panel Configuration

To integrate Simplex equipment, you need:

- Simplex 4100/4100U/4120/4020 Computer Port configured by a Simplex technical representative using the 4100 programming unit
- Simplex 4100/4100U/4120/4020 Master Controller
- RS-232 cable for connecting the computer port to the Metasys Integrator unit (a Simplex RS-232 interface card is also required)
- Metasys Integrator unit
- N2 Bus (for connecting the Metasys Integrator unit to the Metasys or Companion network)
- portable PC for downloading vendor communication tables (.VCT files) and network setup information into the Metasys Integrator unit, drive communication settings, and for running diagnostics
- cable for connecting portable PC to the Metasys Integrator unit
- the correct vendor communication table (.VCT file) to download into the Metasys Integrator unit (supplied on CD-ROM)

This document describes the RS-232 cable and the vendor communication tables. Simplex documentation describes their equipment. The remaining components are described in the Metasys Integrator unit technical bulletins.

Metasys Network Release Requirements

To integrate Simplex equipment into the Metasys network, you need:

- Metasys Operator Workstation (OWS) software Release 9.01 or later
- Metasys Integrator unit firmware Release 9.01 or later
- Metasys Integrator unit software Release 9.3 or later

Metasys Companion Release Requirements

To integrate Simplex equipment into the Metasys Companion network, you need:

- Metasys Companion Release 6.0 or later
- Metasys Integrator unit firmware Release 9.01 or later
- Metasys Integrator unit software Release 9.3 or later

Vendor Component Requirements

Integration between the Metasys Integrator unit and Simplex has been tested with the equipment listed in Table 1. Changes to this equipment or integration of Simplex products not discussed in this document will require additional software development and testing by Systems Products. For information on integrating other products, see the *Custom Integration* section in this document.

Table 1: Simplex Part Numbers

Simplex Product	Card Type
Simplex 4100/4100U/4120/4020 Dual RS-232 Board (Rev. 2.02.03 and 2.03)	0113
Simplex Network Interface Card	6014
Simplex Network Display Unit (Rev. 11.03.03 or higher)	8801
Simplex 4100/4120 Master Controller (Rev. 7.02, 8.04.01, and 9.02.02)	7003
Simplex 4020 Master Controller (Rev. 7.02 and 8.02)	7003
Simplex 8 Point Multi-function I/O	0305
Simplex Mapnet Interface	0110
Simplex 4 Point Auxiliary Relay	3001
Simplex 8 Point Auxiliary Relay	3003
Simplex Remote User Interface	0304
Simplex 4100U Master Controller (Rev. 10.50)	000C

A 4100 or 4100U Programmers Report is required to determine the card addresses and to obtain custom labels useful for defining object names.

Vendor Contact Information

SimplexGrinnell
100 Simplex Drive
Westminster, MA 01441-0001
Phone: (978) 731-2500

Design Considerations

When integrating Simplex equipment, keep the following considerations in mind:

IMPORTANT: Do not leave the Simplex panels (NDU, 4100, 4120, and 4020) programming enable jumper in the program position. Contact your Simplex representative to verify the jumper setting. The 4100U does not have an enable jumper.

Both NDU and Single-panel Configurations

These considerations apply to both NDU and single-panel configurations:

- Make sure all Simplex equipment is set up, started, and running properly **before** attempting to integrate with the Metasys or Companion networks. (The Simplex representative is responsible for operation of Simplex equipment.)
- The computer port must be configured with point device type of “Computer”.

Simplex RS-232 Port B settings are: Port B RS-232, 9600, Even, 8, 1.

Suggested parameters are:

Fire Alarm Events	Yes
Trouble Events	Yes
Supervisory Events	Yes
Priority 2 Alarm Events	Yes
System Reset Events	No
Alarm Silence Events	No
SMPL Print Events	No
Walk Test Events	No
Control Events	Yes*
Utility Events	Yes
Pseudo Events	Yes
Active State Events	Yes

*You may choose to set this to No if you are not interested in receiving any Control events. If set to No, be sure to select applications that do not monitor the Control state. See the *Metasys Integrator Unit Setup* section in this document. Set the terminal flags as follows:

Simplex default Port B Options

Shell = off	Supervision = on
Protocol = on	Bells = off
Echo = off	Handshake = off
Logging = off	Poll = on
Status = on	Attribute = on
Address = on	LF = on
Bprefix = on	Line Width = 80
Aprefix = off	Disablements = off

(The Simplex representative is responsible for setting the 4100/4120/4020 computer port’s baud rate and configuring the computer port using the 4100 programming unit.)

- RS-232 cable distance between the Metasys Integrator unit and the computer port can be a maximum distance of 50 feet.

NDU Configuration Only

These considerations apply to NDU configurations only:

- For optimal performance, make sure the Simplex representative configures the Network Display Unit database so that points are defined sequentially.
- The Simplex technical representative must configure a pseudo point for each node to indicate when a remote node is offline. When a remote node is offline, points mapped to the remote node will remain at their last reported value and status.

The Metasys Integrator unit maps Simplex 4100 System Point IDs to Network Point Addresses (NPAs). To convert a 4100 Network point shown in the 4100 Programming Unit job report to the 4100 System Point ID format (card-slot-point), do the following:

1. Determine the address of the Network Interface Card. This is the 4100 System Point ID card of the Point ID.
2. Calculate the 4100 System Point ID slot using the following calculation:

$$4100 \text{ System Point ID slot} = ([4100 \text{ Network point}^* - 1] / 256) + 1$$

3. Calculate the 4100 System Point ID point using the following calculation:

$$4100 \text{ System Point ID point} = (4100 \text{ Network point}^* - 1) \text{ MOD } 256,$$

that is, the remainder of the division operation in Step 2.

4. Calculate the NPA:

$$\text{NPA} = 4100 \text{ System Point ID point} + 1$$

*A 4100 Network point is a decimal number from 1-25,000.

Examples:

For the 4100 Network Point 257 on Network Interface Card Address 5, the 4100 System Point ID is 5-2-0. The corresponding Binary Input (BI) and Analog Data Integer (ADI) NPA is 1.

For the 4100 Network Point 1079 at Network Interface Card Address 1, the 4100 System Point ID is 1-5-54. The corresponding BI and ADI NPA is 55.

Cable Connections

Cable Pinouts

Use the following cable pinouts for the RS-232 connection between the Metasys Integrator unit and the 4100 RS-232 Port B:

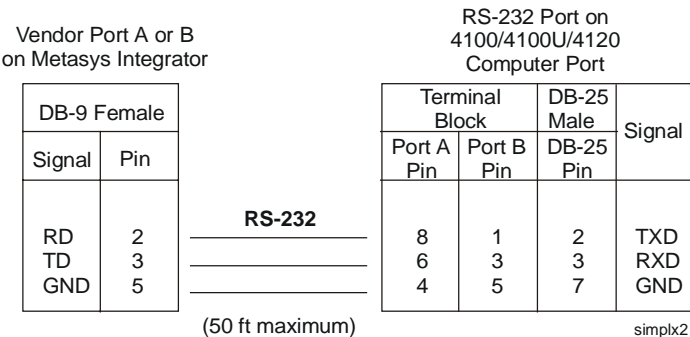


Figure 3: Cable Pinouts for Connection between the Metasys Integrator Unit and the 4100/4100U/4120 Computer Port

Use the following cable pinouts for the RS-232 connection between the Metasys Integrator unit and the 4020 RS-232 Port B:

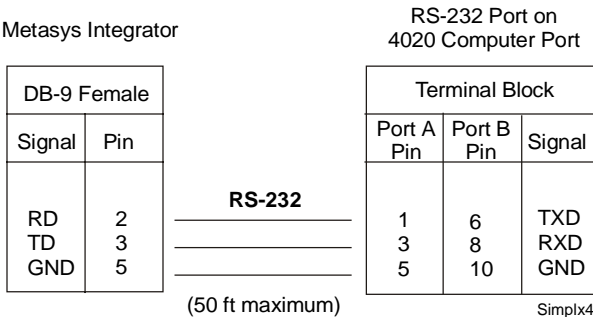


Figure 4: Cable Pinouts for Connection between the Metasys Integrator Unit and the 4020 Computer Port

Connecting the Cable

Connect the female end of the RS-232 cable to either Vendor Port A or Vendor Port B on the Metasys Integrator unit. Connect the male end of the cable to the 4100/4100U/4120 Computer Port.

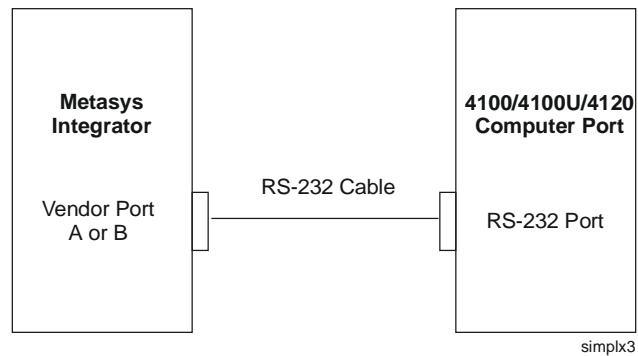


Figure 5: Port-to-Port Connection

Metasys Integrator Unit Setup

To set up a Metasys Integrator Network, use a portable PC connected to the Metasys Integrator Terminal Port. Metasys Integrator unit setup involves:

- downloading the correct vendor communication table (.VCT file)
- setting up the ports
- assigning network addresses to the controllers

The following table provides setup information specific to Simplex applications.

Table 2: Metasys Integrator Unit Setup for Simplex Applications

Vendor Communication Table (.VCT File)	These application monitor all applicable statuses ¹	These applications monitor all statuses except Control Events ²
NDU 4100/4120/4020 Master Controller Digital Pseudo Card 4100/4120 Network Interface Card 4100/4120 Network Interface Card Slot Single Panel 4200/4210/4020 Master Controller Digital Pseudo Card Four/Eight Point Auxiliary Relay Card and Eight Point Multi-function I/O Card Auxiliary Relay Card and Multi-function and 4100U Power Supplies Card Point Status Mapnet Interface Card Mapnet II® Device Points: (choose one of the following four options) Mapnet Card, supporting all statuses 4100U Mapnet Card supporting all statuses and includes True Alarm Analog Values Remote User Interface Card IDNet™ Card Statuses IDNet Devices 4100U Power Supplies (SPS/XPS/RPS/XBC) Card Status 4100U Transponder Interface Card (TIC) Card Status	SIM_MAST.VCT SIM_DIGP.VCT SIM_NETC.VCT SIM_NETS.VCT SIM_MAST.VCT SIM_DIGP.VCT SIM_PNTC.VCT SIM_PNTS.VCT SIM_MAPC.VCT SIM_MAPS.VCT ³ SM_MAPS.VCT ⁴ SIM_MAPU.VCT ³ SM_MAPU.VCT ⁴ SIM_RUIC.VCT SIM_IDNC.VCT SIM_IDDS.VCT ³ SM_IDDS.VCT ⁴ SIM_SPS.VCT SIM_TIC.VCT	SIM_NETA.VCT SIM_PNTA.VCT SIM_MAPA.VCT ³ SM_MAPA.VCT ⁴ SIMMAPUA.VCT ³ SMMAPUA.VCT ⁴ SIM_IDDA.VCT ³ SM_IDDA.VCT ⁴
1 When C (control state event) reporting is enabled at the Simplex panel for the RS-232 port connected to the Metasys Integrator unit. 2 When C (control state) reporting is disabled at the Simplex panel for the RS-232 port connected to the Metasys Integrator unit. 3 Use with Simplex Master Controller Firmware Version 10.x and earlier. 4 Use with Simplex Master Controller Firmware Version 11.x and later.		
Continued on next page . . .		

Port Setup (Cont.)	
Baud Rate	9600
Word Length	8
Stop Bits	1
Parity	Even (default for computer port)
Interface	RS-232
Vendor Address	
NDU Interface Options	
Master Controller SIM_MAST.VCT	0
Digital Pseudo Card SIM_DIGP.VCT	x (x = card address [128-143])
Network Interface Card SIM_NETC.VCT	x-0 (x = card address [1-119])
Network Interface Card Slot SIM_NETS.VCT, SIM_NETA.VCT	c-s, where: c = Network Interface Card address (1-119) s = Slot number (1-12)
Direct Card Access	
Master Controller SIM_MAST.VCT	0
Digital Pseudo Card SIM_DIGP.VCT	x (x = card address [128-143])
Card Status SIM_MAPC.VCT SIM_PNTC.VCT SIM_RUIC.VCT SIM_SPS.VCT SIM_TIC.VCT SIM_IDNC.VCT	x-0 (x = card address [1-119])
Card Point Values SIM_MAPS.VCT ³ , SM_MAPS.VCT ⁴ SIM_PNTS.VCT SIM_MAPA.VCT ³ , SM_MAPA.VCT ⁴ SIM_PNTA SIM_IDDS.VCT ³ , SM_IDDS.VCT ⁴ SIM_IDDA.VCT ³ , SM_IDDA.VCT ⁴	x (x = card address [1-119])
Timeout Value	4100 milliseconds
Poll Delay (4100/4120/4020/NDU)	2500 milliseconds
Poll Delay (4100U)	1000 milliseconds
3 Use with Simplex Master Controller Firmware Version 10.x and earlier.	
4 Use with Simplex Master Controller Firmware Version 11.x and later.	
Continued on next page. . .	

Performance Guide (Cont.)	
Maximum to Recognize First Unsolicited Alarm	220 milliseconds
Scan time for each N2 address. Unsolicited Changes-of-State (COSs) are handled as they occur.	
Per 4100/4120 Master Controller	15 seconds
Per Network Interface Card	15 seconds
Per Network Interface Slot	12.5 minutes
Master Controller	20 seconds
Four/Eight Point Auxiliary Relay Card and Eight Point Multi-function I/O Card	8 seconds
Auxiliary Relay Card and Multi-function Card Point Status	55 seconds
Mapnet Interface Card	20 seconds
Mapnet Card Devices	6.5 minutes
Remote User Interface Card	20 seconds
Per Digital Pseudo Card	10.5 minutes
IDnet Card Devices	7 minutes
IDnet Card Status	10 seconds
SPS Card	20 seconds
SPS Card Devices	12 seconds
TIC Card Status	10 seconds

Point Mapping Tables

Simplex 4100/4100U/ 4120/4020 Master Controller

To get the hardware reference for mapping points to Control System (CS) object attributes (via the software model), combine the Network Point Type (NPT) and Network Point Address (NPA). For example, the hardware reference for the City Alarm Relay point is BI6.

The following table shows the points available for mapping in the Simplex 4100/4100U/4120/4020 Master Controller:

Table 3: Simplex 4100/4100U/4120/4020 Master Controller

NPT ¹	NPA ²	Unit	Description		
BI	1		City Circuit Trouble	0-nor	1-n/a**
BI	2		Master LCD Trouble	0-nor	1-n/a**
BI	3		Simplex Service Mode Trouble	0-nor	1-n/a**
BI	4		Coding Bus Output*	0-off	1-on
BI	5		Master Sonalert***	0-off	1-on
BI	6		City Alarm Relay***	0-off	1-on
BI	7		City Trouble Relay***	0-off	1-on
¹ Network Point Type ² Network Point Address * Coding Bus Output is not available on a 4120, an NDU or 4100U. ** These points support the trouble status. *** These points report the trouble status unsolicited and report the normal state only when polled.					

Simplex Network Interface Card

To get the hardware reference for mapping points to CS object attributes (via the software model), combine the Network Point Type (NPT) and Network Point Address (NPA). For example, the hardware reference for the Wrong Card point is BI2.

The following table shows the points available for mapping in the Simplex Network Interface Card:

Table 4: Simplex Network Interface Card

NPT ¹	NPA ²	Unit	Description		
BI	1		Card Missing/Failed	0-nor	1-n/a
BI	2		Wrong Card	0-nor	1-n/a
BI	3		Version Mismatch	0-nor	1-n/a
BI	4		Network Port Style-7 ³	0-nor	1-n/a
BI	5		Network Communications Failure ⁴	0-nor	1-n/a
BI	6		Extra Node Trouble	0-nor	1-n/a
BI	7		Network Ground Fault	0-nor	1-n/a
BI	8		Duplicate Node Trouble	0-nor	1-n/a
¹ Network Point Type ² Network Point Address ³ Indicates at least one remote node is offline. ⁴ Indicates communication is lost with all other nodes.					

Simplex Network Interface Card Slot

The following table shows the points available for mapping in the Simplex Network Interface Card Slot:

Table 5: Simplex Network Interface Card Slot

NPT ¹	NPA ₂	Unit	Description
ADI	1-256		<p>Use ADI points for WSC, WSO, TPHOTO, and SPHOTO. For the following ADI points:</p> <ul style="list-style-type: none"> 0-normal/open 1-fire alarm 2-priority 2 alarm 4-supervisory 8-utility monitor/analog pseudo state 16-control state is closed³ <p>Note: If a point is in more than one state, the codes will be added together and displayed. For example, if the point is in supervisory and closed control state, the value will equal 20.</p> <p>State of Card Slot Point X (where X = NPA-1)⁴</p>
BI	1-256		<p>For the following BI points, a closed state indicates one of the following:</p> <ul style="list-style-type: none"> Fire Alarm Abnormal State Priority 2 Abnormal State Supervisory Abnormal State Utility Monitor, Digital/Analog Pseudo State Closed Control State Closed³ <p>All of the points support trouble status.</p> <p>State of Card-Slot-Point X⁴ 0-nor/off 1-alarm/closed</p>
<p>1 Network Point Type 2 Network Point Address 3 The closed state is not reported when C reporting is disabled and file SIM_NETA.VCT is used. 4 To determine the Simplex 4100 Network point, use the following equation: Network Point = NPA + (Slot - 1) x 256.</p>			

Simplex Digital Pseudo Card

The following table shows the points available for mapping in the Simplex Digital Pseudo Card:

Table 6: Simplex Digital Pseudo Card

NPT ¹	NPA ₂	Unit	Description
BI	1-256		<p>The following point supports either the trouble status or the closed state:</p> <p>State of Digital Point (where X = NPA - 1)</p> <p>0-nor/off 1-alarm/on</p>
<p>1 Network Point Type 2 Network Point Address</p>			

**Simplex
Four Point
Auxiliary Relay
Card,
Eight Point
Auxiliary Relay
Card, and
Eight Point
Multi-function
I/O Card**

The following table shows the points available for mapping in the Simplex Four/Eight Point Auxiliary Relay Card and Eight Point Multi-function I/O Card:

Table 7: Simplex Four Point Auxiliary Relay Card, Eight Point Auxiliary Relay Card and Eight Point Multi-function I/O Card

NPT ¹	NPA ²	Unit	Description
			All of the following BI points support the trouble status:
BI	1		Card Missing/Failed 0-nor 1-n/a
BI	2		Wrong Card 0-nor 1-n/a
BI	3		Broadcast Failure 0-nor 1-n/a
1 Network Point Type			
2 Network Point Address			

**Simplex
Auxiliary Relay
Card and
Multi-function
Card Point
Status Device
Points**

The following table shows the points available for mapping in the following Simplex cards: Four Point Auxiliary Relay, Signal Cards, Eight Point Auxiliary Relay, and Eight Point Multi-function device points:

Table 8: Simplex Auxiliary Relay Card and Multi-function Card Point Status Device Points

NPT ¹	NPA ²	Unit	Description
			All of the following BI points support the trouble status:
BI	1-16		State of Net Point (where X = NPA - 1) 0-nor/open 1-alarm/closed**
			For the following ADI Points 0-normal/open, 1-Fire Alarm, 2-Priority 2 Alarm, 4-Supervisory, 8-Utility Monitor/Analog Pseudo State, 16-Control State is Closed***
ADI	1-8		Note: If a point is in more than one state, a combination of the above codes will be output. For example, if the point is in closed and supervisory, the value = 20. State of Point (where X = NPA - 1)
ADI	9-16		State of Point (where X = NPA - 1)*
1 Network Point Type			
2 Network Point Address			
* These points are not valid for the Four Point Auxiliary Relay Card and the Eight Point Multi-function I/O Card.			
** A closed state indicates that the point is in one of the following states: Fire Alarm Abnormal State Priority 2 Abnormal State Supervisory Abnormal State Utility Monitor, Digital/Analog Pseudo State Closed Control State Closed			
*** Use the SIM_PNTA.VCT file to ignore the control state.			

**Simplex 4100U
Transponder
Interface Card
(TIC)**

The following table shows the points available for mapping in the Simplex IDnet Card:

Table 9: Simplex 4100U Transponder Interface Card (TIC)

NPT ¹	NPA ²	Unit	Description
			All of the following BI points support the trouble status:
BI	1		Card Missing/Failed Trouble 0-nor, 1-n/a
BI	2		Wrong Card Trouble 0-nor, 1-n/a
BI	3		Primary RUI Trouble 0-nor, 1-n/a
BI	4		Secondary RUI Trouble 0-nor, 1-n/a
BI	5		Local Mode Disabled Trouble 0-nor, 1-n/a
BI	6		Audio Riser Trouble 0-nor, 1-n/a
BI	7		Digital Audio Riser Receive Trouble 0-nor, 1-n/a
BI	8		Digital Audio Riser Primary Trouble 0-nor, 1-n/a
BI	9		Digital Audio Riser Earth Trouble 0-nor, 1-n/a
1 Network Point Type			
2 Network Point Address			

**Simplex 4100U
SPS,
Expansion
Power Supply
(XPS), Remote
Power Supply
(RPS), and the
External
Battery
Charger (XBC)
Card**

The following table shows the points available for mapping in the Simplex 4100U SPS, Expansion Power Supply (XPS), Remote Power Supply (RPS), and the External Battery Charger (XBC):

Table 10: Simplex 4100U SPS, Expansion Power Supply (XPS), Remote Power Supply (RPS), and the External Battery Charger (XBS) Card

NPT ¹	NPA ²	Unit	Description
			All of the following BI points support the trouble status:
BI	1		Card Missing/Failed Trouble 0-nor, 1-n/a
BI	2		Wrong Card Trouble 0-nor, 1-n/a
BI	3		AC Fail Trouble 0-nor, 1-n/a
BI	4		Positive Earth Ground Trouble 0-nor, 1-n/a
BI	5		Negative Earth Ground Trouble 0-nor, 1-n/a
BI	6		City Circuit 2 Trouble 0-nor, 1-n/a
BI	7		Depleted Battery Cutout Trouble 0-nor, 1-n/a
BI	8		City Circuit 1 Trouble 0-nor, 1-n/a
BI	9		Low Battery Trouble 0-nor, 1-n/a
BI	10		Depleted Battery Trouble 0-nor, 1-n/a
BI	11		Battery Charger Trouble 0-nor, 1-n/a
BI	12		Signal Power Trouble 0-nor, 1-n/a
BI	13		Overcurrent Trouble 0-nor, 1-n/a
BI	14		Broadcast Fail Trouble 0-nor, 1-n/a
BI	15		NAC Miswire Trouble 0-nor, 1-n/a
BI	16		Hardware Configuration Mismatch 0-nor, 1-n/a
1 Network Point Type			
2 Network Point Address			

**Simplex
4100/4120
SPS,
Expansion
Power Supply
(XPS), Remote
Power Supply
(RPS) and the
External
Battery
Charger (XBC)
Devices**

The following table shows the points available for mapping in the Simplex 4100/4120 SPS, Expansion Power Supply (XPS), Remote Power Supply (RPS) and the External Battery Charger (XBC) Devices:

Table 11: Simplex 4100/4120 SPS, Expansion Power Supply (XPS), Remote Power Supply (RPS) and the External Battery Charger (XBC) Devices

NPT ¹	NPA ₂	Units	Description
			All of the following BI points support the trouble status:
BI	1		Signal Circuit point 1 0-off 1-on*
BI	2		Signal Circuit point 2 0-off 1-on*
BI	3		Signal Circuit point 3 0-off 1-on*
BI	4		Signal Circuit point 4 0-off 1-on*
BI	5		Signal Circuit point 5 0-off 1-on*
BI	6		Signal Circuit point 6 0-off 1-on*
BI	7		Auxiliary Relay 0-off 1-on*
BI	8		Auxiliary Power Relay 0-nor, 1-n/a*
BI	9		City Relay Output 1 0-open, 1-closed*
BI	10		City Relay Output 2 0-open, 1-closed*
BI	11		City Relay Output 3 0-open, 1-closed*
BI	12		City Relay Output 4 0-open, 1-closed*
BI	13		City Relay Output 5 0-open, 1-closed*
BI	14		Unused
BI	15		Unused
BI*	16		Unused
			For all of the following ADI points: 0 = normal/open, 8 = Utility monitor, 16 = Control State is closed
ADI	1		Signal Circuit point 1
ADI	2		Signal Circuit point 2
ADI	3		Signal Circuit point 3
ADI	4		Signal Circuit point 4
ADI	5		Signal Circuit point 5
ADI	6		Signal Circuit point 6
ADI	7		Auxiliary Relay
ADI	8		Auxiliary Power Relay
Continued on next page. . .			

NPT ¹ (Cont.)	NPA ²	Units	Description
ADI	9		City Relay Output 1
ADI	10		City Relay Output 2
ADI	11		City Relay Output 3
ADI	12		City Relay Output 4
ADI	13		City Relay Output 5
ADI	14		Unused
ADI	15		Unused
ADI	16		Unused
1 Network Point Type 2 Network Point Address * A closed state indicates that the point is in one of the following states: Utility monitor Digital/Analog Psuedo state closed			

Simplex 4100U IDnet Card

The following table shows the points available for mapping in the Simplex 4100U IDnet Card:

Table 12: Simplex 4100U IDnet Card

NPT ¹	NPA ²	Units	Description
			All of the following BI points support the trouble status:
BI	1		Card Missing/Failed Trouble 0-nor, 1-n/a
BI	2		Wrong Card Trouble 0-nor, 1-n/a
BI	3		IDNet Extra Device Trouble 0-nor, 1-n/a
BI	4		IDNet Short Circuit Search Trouble 0-nor, 1-n/a
BI	5		IDNet Class A Trouble 0-nor, 1-n/a
BI	6		IDNet Short Circuit Trouble 0-nor, 1-n/a
BI	7		IDNet Channel Fail Trouble 0-nor, 1-n/a
BI	8		IDNet Channel Initialization Trouble 0-nor, 1-n/a
1 Network Point Type 2 Network Point Address			

Simplex 4100U IDnet Devices

The following table shows the points available for mapping in the Simplex 4100U IDnet Devices.

Table 13: Simplex 4100U IDnet Devices

NPT	NPA	Units	Description
BI	1-250		All of the following BI points support the trouble status: State of net point (NPA)* 0-nor/open, 1-alarm/closed
A ****	1-250	% or DegF	Current % of alarm if True Alarm smoke device*** or Current Temperature if True Alarm heat device.
ADI	1-250		Use for WSC and TPHOTO and SPHOTO for the following ADI points: 0-normal/open, 1-Fire Alarm, 2-Priority 2 Alarm, 4-Supervisory, 8-Utility Monitor/Analog Pseudo State, 16-Control State is Closed** Note: If a point is in more than one state, a combination of the above codes will be output. For example, if the point is in closed and supervisory, the value = 20.
<p>* A closed state indicates that the point is in one of the following states: Fire Alarm Abnormal State Priority 2 Abnormal State Supervisory Abnormal State Utility Monitor, Digital/Analog Pseudo State Closed Control State Closed (only applicable if sim_idnt.vct is used)</p> <p>** Use the sim_mapa.vct or sm_mapa.vct file to ignore the control state.</p> <p>*** Points which are not mapped to True Alarm or heat devices will be unreliable.</p> <p>**** Metasys Integrator system supports reading analog values for the 4100U. These are read on a very slow poll and should not be used for fire alarm reporting but can provide warning alarms for preventative maintenance.</p>			

Simplex Remote User Interface Card

To get the hardware reference for mapping points to CS object attributes (via the software model), combine the NPT (Network Point Type) and NPA (Network Point Address). For example, the hardware reference for the Wrong Card point is BI2.

The following table shows the points available for mapping in the Simplex Remote User Interface Card:

Table 14: Simplex Remote User Interface Card

NPT ¹	NPA ²	Unit	Description
All of the following BI points support the trouble status:			
BI	1		Card Missing/Failed 0-nor 1-n/a
BI	2		Wrong Card 0-nor 1-n/a
BI	3		External Bus Short 0-nor 1-n/a
BI	4		External UART 0-nor 1-n/a
BI	5		Internal UART 0-nor 1-n/a
BI	6		External Bus Overflow 0-nor 1-n/a
BI	7		External Bus Class-A 0-nor 1-n/a
1	Network Point Type		
2	Network Point Address		

Simplex Mapnet Interface Card

To get the hardware reference for mapping points to CS object attributes (via the software model), combine the Network Point Type (NPT) and Network Point Address (NPA). For example, the hardware reference for the Wrong Card point is BI2.

The following table shows the points available for mapping in the Simplex Mapnet Interface Card:

Table 15: Simplex Mapnet Interface Card

NPT ¹	NPA ²	Unit	Description
All of the following BI points support the trouble status:			
BI	1		Card Missing/Failed 0-nor 1-n/a
BI	2		Wrong Card 0-nor 1-n/a
BI	3		Extra Device 0-nor 1-n/a
BI	4		Mapnet Communications Failure 0-nor 1-n/a
BI	5		Mapnet Class A 0-nor 1-n/a
BI	6		Mapnet Power Supply Status 0-nor 1-n/a
BI	7		Mapnet Short Status 0-nor 1-n/a
1	Network Point Type		
2	Network Point Address		

**Simplex
Mapnet II
Device Points**

The following table shows the points available for mapping in the Simplex Mapnet II Device Points:

Table 16: Simplex Mapnet II Device Points

NPT	NPA	Unit	Description
BI	1-250		All of the following BI points support the trouble status: State of Net Point (where X = NPA - 1)* 0-nor/off 1-alarm/closed
AI****	1-127	% or DegF	Current % of alarm if True Alarm smoke device***or Current Temperature if True Alarm heat device
ADI	1-127		Use for WSC, TPHOTO, and SPHOTO. For the following ADI Points 0-Normal/Open, 1-Fire Alarm, 2-Priority, 2-Alarm, 4-Supervisory, 8-Utility Monitor/Analog Pseudo State, 16-Control State is Closed** Note: If a point is in more than one state, a combination of the above codes will be output. For example, if the point is in Closed and Supervisory, the value = 20. State of Net Point (NPA)*
<p>* A closed state indicates that the point is in one of the following states: Fire Alarm Abnormal State Priority 2 Abnormal State Supervisory Abnormal State Utility Monitor, Digital/Analog Pseudo State Closed Control State Closed</p> <p>** Use the sim_mapa.vct or sm_mapa.vct file to ignore the control state.</p> <p>*** These points apply when using the new application sim_mapu.vct or sm_mapu.vct in the 4100U configuration. Points not mapped to True Alarm smoke or heat devices are unreliable.</p> <p>**** Metasys Integrator unit supports reading analog values for the 4100U. These are read on a very slow poll and should not be used for fire alarm reporting but can provide warning alarms for preventative maintenance.</p>			

Metasys Network Setup

Metasys network setup is described in the Metasys Integrator unit technical bulletins. This section contains details specific to Simplex applications.

We recommend that all points that report an alarm or trouble status be directly mapped to BI objects.

Mapping to a CS Object

Table 17: Software Model and CS Object Definition

Application	Software Model (on <i>Tables and Models</i> CD-ROM)	Display Attribute (recommended)	NT Command Attribute (recommended)
4100/4100U/4120 Master Controller	SIM_MAST.DDL	BI5 Master Sonalert	BI5 Master Sonalert
Digital Pseudo Card	SIM_DIGP.DDL	BI1	BI1
Network Interface Card	SIM_NETC.DDL	BI1 State of Point 1	BI1 State of Point 1
Network Interface Card Slot	SIM_NETS.DDL	BI1 State of Point 1	BI1 State of Point 1
Four/Eight Point Auxiliary Relay Card and Eight Point Multi-function I/O Card and Mapnet II Device	SIM_PNTC.DDL	BI1	BI1
Auxiliary Relay Card and Multi-function Card Point Status	SIM_PNTS.DDL	BI1	BI1
Mapnet Interface Card	SIM_MAPC.DDL	BI1 Card Missing/Failed	BI1
Remote User Interface Card	SIM_RUIC.DDL	BI1 Card Missing/Failed	BI1
Device Points Status	SIM_MAPS.DLL	BI1	BI1
IDNet Card Statuses	SIM_IDNC.DLL	BI1 Card Missing/Failed	BI1
IDNet devices	SIM_IDDS.DLL	AI1 Current % of Alarm or Temperature	BI1 State of point 1
4100U Power Supplies (SPS/XPS/RPS/XBC) Card	SIM_SPS.DLL	BI1 Card Missing/Failed	BI1
4100U Transponder Interface Card (TIC) Card Status	SIM_TIC.DLL	BI1 Card Missing/Failed	BI1

Custom Integration

For information on integrating products that are not discussed in this document, first refer to the *Metasys Compatible Products* online list of released connectivity products. If this list does not provide the information you require, consider using the Systems Integration Services (SIS) *Request Custom Engineered Solutions* process to request a custom contract from the System Integration Team.

Access both the *Metasys Compatible Products* and the *Request Custom Engineered Solutions* process from *The Advisor* by performing the following steps:

1. Click on the *Products Focus* link, located at the top of *The Advisor* home page.
2. Under Products, click on the *Systems Integration Services* link.
3. For the searchable database, click on *Metasys Compatible Products*.
4. Select *Metasys Compatible Products Database*.
5. Click *Online Search Tool*.
6. After the search is completed, return to the *Systems Integration Services* home page as instructed in Steps 1-2.
7. Select *Custom Engineered Solutions* to view the process used for requesting all types of SIS engineered solutions and services.
8. Select *Requesting an Engineered Solution or Service*.
9. Click *Online Request Page*.

If you need further assistance, contact the Johnson Controls® Field Support Center.



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